

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077BY030NM

Site Name: Sandhills

Precipitation or Climate Zone: 15 to 19 inches

Phase: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on coarse-textured eolian and alluvial sediments on the upland plains. The landscape is typically a complex of vegetated sand ridges and sand swales. The ridges tend to arrange themselves in a chain extending parallel in the direction of the prevailing winds. The sand ridges generally extend to a tip then collapse causing this side to be concave on the leeward side and generally convex on the windward side. Slopes range from gently sloping to hilly. Slopes are complex and range from 1 to 25 percent. Exposure varies and is generally not significant. Elevation ranges from 2,800 to 4,200 feet above sea level.

Land Form:

1. Plain
2. Ridge
3. Swale

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	2,800	4,200
Slope (percent)	1	25
Water Table Depth (inches)	N/A	N/A
	Minimum	Maximum
Flooding:		
Frequency	N/A	N/A
Duration	N/A	N/A
	Minimum	Maximum
Ponding:		
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of this area can be classified as “semi-arid continental”.

Annual average precipitation ranges from 15 to 19 inches. Seventy percent of the moisture usually falls during the six-month period May through October. Most of this summer precipitation falls in the form of brief and heavy afternoon and evening thunderstorms. Hail may accompany the more severe summer storms. Spring precipitation (March, April, May) accounts for approximately 25 percent of the annual precipitation. Most of this comes as light rain showers. Winter moisture may occur as either rain or snow and usually averages less than ½ inch per month.

Temperatures are characterized by distinct seasonal change and large annual and diurnal temperature ranges. Summers are moderately warm; maximum temperatures average above 90 degrees F in July and August. Temperatures usually fall rapidly after sundown and range in the low 60’s on most summer nights. Winters are mild, sunny and dry. Daytime shade temperatures in mid-winter usually rise to the 50’s. However, freezing temperatures normally occur at night from mid-November to mid-March.

The frost-free season ranges from 181 to 199 days. Dates of the last freeze vary from April 10th to April 23rd and the first freeze varies from October 18th to October 26th.

Wind velocities in this area are high and average about 5.3 miles per hour on an annual basis. The spring months are characterized by frequent windstorms with velocities in excess of 45 miles per hour, which cause excessive erosion on soils not protected by a good ground cover of vegetation. Humidity is low and evaporation is high.

Both temperature and rainfall distribution favor production of warm-season, perennial plants in this area. However, sufficient late winter and early spring moisture allows cool-season species to occupy an important component within most plant communities.

Climate data was obtained from the WCCR web site. Using 50% probabilities for freeze-free and frost-free seasons at 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	<u>175</u>	<u>183</u>
Freeze-free period (days):	<u>191</u>	<u>202</u>
Mean annual precipitation (inches):	<u>15</u>	<u>19</u>

Monthly moisture (inches) and temperature (°F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.43	.50	21.8	52.8
February	.43	.66	25.0	57.7
March	.68	.80	30.0	64.7
April	.90	1.05	38.1	73.4
May	2.01	2.35	47.3	81.8
June	2.13	2.67	56.1	90.9
July	2.80	3.25	60.6	93.4
August	2.80	3.05	59.4	91.2
September	1.66	2.17	52.4	85.1
October	1.29	1.37	41.5	75.0
November	.59	.72	30.3	62.5
December	.49	.65	22.1	53.5

Climate Stations:

		Period					
Station ID	<u>291332</u>	Location	<u>Cameron, NM</u>	From:	<u>01/01/48</u>	To:	<u>05/31/98</u>
Station ID	<u>295516</u>	Location	<u>McCarty Ranch, NM</u>	From:	<u>11/01/83</u>	To:	<u>12/31/01</u>
Station ID	<u>297226</u>	Location	<u>Ragland 3SSW, NM</u>	From:	<u>02/01/35</u>	To:	<u>12/31/01</u>
Station ID	<u>297867</u>	Location	<u>San Jon, NM</u>	From:	<u>01/01/14</u>	To:	<u>12/31/01</u>

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils of this site are deep and excessively drained. The surface textures are fine sand or loamy fine sand and extend to a depth of 60 inches or more. The soils have rapid permeability. Available water-holding capacity is low. The plant-soil-air-water relationship is fair. Because of the coarse textures and rapid drying of the surface, the soil if unprotected by plant cover and organic residue, becomes wind blown and converts rapidly to unstabilized dunes.

Parent Material Kind: Eolian sands

Parent Material Origin: Sandstone - unspecified

Surface Texture:

1. Fine sand
2. Loamy fine sand
3.

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Sandy

Surface Fragments <=3" (% Cover): N/A

Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): N/A

Subsurface Fragments >=3" (%Volume): N/A

	Minimum	Maximum
	Excessively	Excessively
Drainage Class:	<u>Rapid</u>	<u>Rapid</u>
Permeability Class:	<u>60</u>	<u>>72</u>
Depth (inches):	<u>N/A</u>	<u>N/A</u>
Electrical Conductivity (mmhos/cm):	<u>N/A</u>	<u>N/A</u>
Sodium Absorption Ratio:	<u>6.6</u>	<u>7.8</u>
Soil Reaction (1:1 Water):	<u>N/A</u>	<u>N/A</u>
Soil Reaction (0.1M CaCl2):	<u>3</u>	<u>6</u>
Available Water Capacity (inches):		

Calcium Carbonate Equivalent (percent):

N/A

N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label:** HCPC

Plant Community Narrative: Historic Climax Plant Community

This site is grassland dominated by warm-season tall and mid-grasses. Short grasses, shrubs, half-shrubs, perennial and annual forbs make up the remainder of the plant community. Forbs generally fluctuate greatly from year to year. Being most abundant in years of early spring precipitation. Forbs and woody species are evenly distributed.

Canopy Cover:

Trees	0
Shrubs and half shrubs	10 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	25
Bare ground	35
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	30
Litter (average depth in cm.)	4

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	900	1,500	1,800
Forb	120	200	240
Tree/Shrub/Vine	180	300	360
Lichen			
Moss			
Microbiotic Crusts			
Total	1,200	2,000	2,400

Plant Community Composition and Group Annual Production: Plant species are grouped by annual production **not** by functional groups.

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	ANHA	Sand Bluestem	400 – 500	400 – 500
2	SPCR SPFL2 SPCO4	Sand Dropseed Mesa Dropseed Spike Dropseed	200 – 240	200 – 240
3	SCSC	Little Bluestem	200 – 240	200 – 240
4	CAGI3	Giant Sandreed	200 – 240	200 – 240
5	SONU2	Indiangrass	80 – 120	80 – 120
6	HENE5 HECO26 PAVI2 ACHY	New Mexico Feathergrass Needleandthread Switchgrass Indian Ricegrass	80 – 120	80 – 120
7	PASE5 ERAGR SEVU2	Sand Paspalum Lovegrass (Sand) spp. Plains Bristlegrass	60 – 100	60 – 100
8	BOHI2	Hairy Grama	60 – 100	60 – 100
9	ARIST	Threeawn spp.	60 – 100	60 – 100
10	DICOA PAHA	Fall Witchgrass Hall's Panicum	40 – 80	40 – 80
11	CELO3	Field Sandbur	0 – 40	0 – 40
12	2GA CAREX	Other Annual Grasses Sedges	0 – 40	0 – 40

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
13	HEAN3	Annual Sunflower	40 – 80	40 – 80
14	ERAN4	Annual Buckwheat	40 – 80	40 – 80
15	BRASS2	Annual Mustard	40 – 80	40 – 80
16	GAURA	Gaura spp.	20 – 40	20 – 40
17	HYRI	Rubberweed	20 – 40	20 – 40
18	MEMU3 SPHAE AMTR	Stickleaf Globemallow spp. Perennial Ragweed	20 – 40	20 – 40
19	2FA	Other Annual Forbs	40 – 80	40 – 80
20	2FP	Other Perennial Forbs	40 – 80	40 – 80

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
21	ARFI2	Sand Sagebrush	100 – 140	100 – 140
22	RHTR	Skunkbush Sumac	20 – 60	20 – 60
23	YUGL	Small Soapweed	0 – 40	0 – 40
24	GUSA2 SENEC OPPO	Broom Snakeweed Groundsel spp. Plains Pricklypear Cactus	0 – 60	0 – 60
25	PRANW SASAD	Sand Plum Western Soapberry	0 – 60	0 – 60

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Growth Curves

Growth Curve ID 5205NM

Growth Curve Name: HCPC

Growth Curve Description: A warm-season tall and mid-grass grassland with forbs and shrubs evenly distributed.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

No Data.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series	Hydrologic Group
Tivoli	A

Recreational Uses:

Recreation potential is limited due to lack of access roads for two-wheel drive vehicles, loose sands, lack of live water and lack of shade. The terrain typical of the “wide open spaces” of the area enhances aesthetic appeal. Hunting for antelope is fair to good. The natural beauty is enhanced by the large variety of flowering forbs that bloom from early spring to late fall and the varying color hues of the bluestem species.

Wood Products:

This site produces no wood products.

Other Products:

Grazing:

This site can be grazed any season of the year by all classes of livestock, generally without regard to age. However, cattle most efficiently utilize it. The variety of grasses, forbs and half-shrubs furnishes good nutrition to grazing animals during most seasons of the year.

Approximately 90 percent of the annual production furnish forage for grazing animals.

Continuous grazing or grazing continually during the period from April to October by cattle will result in a plant community dominated by low-forage value species such as sand dropseed, sand sagebrush, yucca spp. and threeawn spp. Sand sagebrush and yucca may increase to the extent that they become the dominant vegetation. A system of deferred grazing, which varies the season of grazing and rest, is needed to maintain or to improve a healthy well-balanced plant community. Rest in different seasons benefits different plants. Winter rest will benefit all woody species. Spring rest (April-June) encourages forb production and will benefit New Mexico feathergrass, Indian ricegrass and needleandthread. Summer rest (July-September) benefits warm-season grasses such as sand bluestem, sideoats grama and little bluestem to grow and reproduce. Fall rest allows plants to complete their growth cycle. New Mexico feathergrass and needleandthread is utilized readily by cattle in the spring and fall and least utilized in the summer when the awns interfere with utilization and may injure cattle. Although utilization in June is detrimental to stands of needleandthread and New Mexico feathergrass, a quick moderate cropping when the heads are in the boot state of development, can remove the heads and prevent subsequent interference and injury to cattle by awns. This must be determined on limited areas, preferably when there is adequate moisture for regrowth, and should be followed by a period of deferment. Sand sagebrush can be controlled by concentrating cattle during the late winter and early spring followed by deferment until October.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.1 – 5.3
75 – 51	3.3 – 6.7
50 – 26	5.1 – 12.0
25 – 0	12.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Sand Bluestem	Andropogon hallii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hairy Grama	Bouteloua hirsuta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Plains Bristlegrass	Setaria vulpiseta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Fall Witchgrass	Digitaria cognata v.cognata	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sand Paspalum	Paspalum setaceum	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Indiangrass	Sorghastrum nutans	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Giant Sandreed	Calamovilfa gigantea	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Hall's Panicum	Panicum hallii	EP	D	D	D	D	P	P	P	P	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Switchgrass	Panicum virgatum	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Plains Rabbitbrush	Ericameria spp.	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	U	D	D	D	U	U	U

Animal Kind: Livestock

Animal Type: Horse

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Hairy Grama	Bouteloua hirsuta	EP	D	D	D	D	P	P	P	P	P	D	D	D
Hall's Panicum	Panicum hallii	EP	D	D	D	D	P	P	P	P	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Switchgrass	Panicum virgatum	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

Animal Kind: Wildlife

Animal Type: Antelope

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Sand Sagebrush	Artemisia filifolia	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Astragalus	Astragalus spp.	L	U	U	D	D	D	D	D	D	U	U	U	U
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	D	D	D	U	U	U	U
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Switchgrass	Panicum virgatum	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites: _____

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: New Mexico

County: Harding, Quay

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? Yes No

General Legal Description: _____

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern High Plains 77 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Curry, Harding and Quay.

Characteristic Soils Are:

Tivoli

Other Soils included are:

Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	07/26/78	Don Sylvester	07/26/78

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Elizabeth Wright	09/10/02	George Chavez	09/12/02